

CLAIMS

1. A method for operating a lithium ion secondary battery system comprising:

carrying out an intermittent power feeding in which a power feeding and a pause are repeatedly executed, when a lithium ion
5 secondary battery is discharged or charged with not less than a predetermined discharge rate or charge rate.

2. The method for operating the lithium ion secondary battery system as set forth in claim 1, wherein said pause is executed for a period not less than the period required for the voltage of the lithium ion secondary battery to restore up to not less than 70% of
5 the open circuit voltage after the lithium ion secondary battery is discharged until the voltage thereof reaches the discharge end voltage, when the lithium ion secondary battery is discharged.

3. The method for operating the lithium ion secondary battery system as set forth in claim 1 or 2, wherein said pause is executed for a period not less than the period required for the voltage of the lithium ion secondary battery to go down by not less than 70%
5 of a voltage difference between the open circuit voltage and the charge end voltage after the lithium secondary battery is charged until the voltage thereof reaches the charge end voltage, when the lithium ion secondary battery is charged.

4. The method for operating the lithium ion secondary battery system as set forth in any one of claims 1 to 3, wherein said

intermittent power feeding is carried out when the discharge rate or the charge rate is not less than 5C.

5. The method for operating the lithium ion secondary battery system as set forth in any one of claims 1 to 4, wherein the lithium ion secondary battery includes a positive active material having an average discharge potential to the lithium metal of not less than
5 4.5V.

6. The method for operating the lithium ion secondary battery system as set forth in any one of claims 1 to 5, wherein the lithium ion secondary battery is incorporated in a power supply device of an electric automobile or a hybrid automobile.

7. A lithium ion secondary battery system comprising:
a lithium ion secondary battery; and
a control unit which carries out an intermittent power feeding in which a power feeding and a pause are repeatedly executed, when
5 a lithium ion secondary battery is discharged or charged with not less than a predetermined discharge rate or charge rate.

8. The lithium ion secondary battery system as set forth in claim 7, wherein said control unit executes said pause for a period not less than the period required for the voltage of the lithium ion secondary battery to restore up to not less than 70% of the open
5 circuit voltage after the lithium ion secondary battery is discharged until the voltage thereof reaches the discharge end voltage, when

the lithium ion secondary battery is discharged.

9. The lithium ion secondary battery system as set forth in claim 7 or 8, further comprising a voltage measuring unit which measures a voltage of the lithium ion secondary battery, wherein said control unit executes said pause for a period not less than the period required
5 for the voltage of the lithium ion secondary battery to go down by not less than 70% of a voltage difference between the open circuit voltage and the charge end voltage after the lithium secondary battery is charged until the voltage thereof reaches the charge end voltage, when the lithium ion secondary battery is charged.

10. The lithium ion secondary battery system as set forth in any one of claims 7 to 9, further comprising a detection unit which detects the discharge rate or the charge rate of the lithium ion secondary battery, wherein said control unit carries out said intermittent
5 power feeding when the discharge rate or the charge rate of the lithium ion secondary battery is not less than 5C.

11. The lithium ion secondary battery system as set forth in any one of claims 7 to 10, wherein the lithium ion secondary battery includes a positive active material having an average discharge potential to the lithium metal of not less than 4.5V.

12. The lithium ion secondary battery as set forth in any one of claims 7 to 11, wherein the lithium ion secondary battery is incorporated in a power supply device of an electric automobile or

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a hybrid automobile.